DIGITUS®

5-Port Gigabit Ethernet N-WAY SWITCH

User's Guide

DN-8007C1

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ABOUT THIS GUIDE

This user's guide tells you how to install your 5-Port 1000BASE-T Gigabit Ethernet Switch, how to connect it to your Gigabit Ethernet network.

Terms

For simplicity, this documentation uses the terms "Switch" (first letter upper case) to refer to the 5-Port 1000BASE-T Gigabit Ethernet Switch, and "switch" (first letter lower case) to refer to all Ethernet switches, including the 5-Port 1000BASE-T Gigabit Ethernet Switch.

Overview of this User's Guide

Introduction. Describes the Switch and its features.

Unpacking and Setup. Helps you get started with the basic installation of the Switch.

Identifying External Components. Describes the front panel, rear panel and LED indicators of the Switch.

Technical Specifications. Lists all the technical specifications of the Switch.

INTRODUCTION

This section describes the features of the 5-Port 1000BASE-T Gigabit Ethernet Switch, as well as providing some background information about Gigabit Ethernet and switching technology.

Gigabit Ethernet Technology

Gigabit Ethernet is an extension of IEEE 802.3 Ethernet utilizing the same packet structure, format, and support for CSMA/CD protocol, full duplex, flow control, and management objects, but with a tenfold increase in theoretical throughput over 100-Mbps Fast Ethernet and a hundredfold increase over 10-Mbps Ethernet. Since it is compatible with all 10-Mbps and 100-Mbps Ethernet environments, Gigabit Ethernet provides a straightforward upgrade without wasting a company's existing investment in hardware, software, and trained personnel.

The increased speed and extra bandwidth offered by Gigabit Ethernet is essential to coping with the network bottlenecks that frequently develop as computers and their busses get faster and more users use applications that generate more traffic. Upgrading key components, such as your backbone and servers to Gigabit Ethernet can greatly improve network response times as well as significantly speed up the traffic between your subnets.

Gigabit Ethernet supports video conferencing, complex imaging, and similar data-intensive applications. Likewise, since data transfers occur 10 times faster than

Fast Ethernet, servers outfitted with Gigabit Ethernet NIC's are able to perform 10 times the number of operations in the same amount of time.

Switching Technology

Another key development pushing the limits of Ethernet technology is in the field of switching technology. A switch bridges Ethernet packets at the MAC address level of the Ethernet protocol transmitting among connected Ethernet or fast Ethernet LAN segments.

Switching is a cost-effective way of increasing the total network capacity available to users on a local area network. A switch increases capacity and decreases network loading by making it possible for a local area network to be divided into different segments which don't compete with each other for network transmission capacity, giving a decreased load on each.

The switch acts as a high-speed selective bridge between the individual segments. Traffic that needs to go from one segment to another is automatically forwarded by the switch, without interfering with any other segments. This allows the total network capacity to be multiplied, while still maintaining the same network cabling and adapter cards.

Switching LAN technology is a marked improvement over the previous generation of network bridges, which were characterized by higher latencies. Routers have also been used to segment local area networks, but the cost of a router and the setup and maintenance required make routers relatively impractical. Today's switches are

an ideal solution to most kinds of local area network congestion problems.

Features

The 5-Port 1000BASE-T Gigabit Ethernet Switch was designed for easy installation and high performance in an environment where traffic on the network and the number of users increase continuously.

- **5 1000BASE-T Gigabit Ethernet ports**
- **Supports Auto-Negotiation for 10/100/1000Mbps and duplex mode**
- **Supports Auto-MDIX for each port**
- **Support Full/Half duplex transfer mode for 10 and 100Mbps**
- **Support Full duplex transfer mode for 1000Mbps**
- **Full wire speed reception and transmission**
- **Store-and-Forward switching method**
- **Supports 8K absolute MAC addresses**
- **Supports 112KBytes RAM for data buffering**
- **Extensive front-panel diagnostic LEDs**
- **IEEE 802.3x flow control for full-duplex**
- **Back pressure flow control for half-duplex**

UNPACKING AND SETUP

This chapter provides unpacking and setup information for the Switch.

Unpacking

Open the shipping carton of the Switch and carefully unpack its contents. The carton should contain the following items:

- One 5-Port 1000BASE-T Gigabit Ethernet Switch
- Four rubber feet with adhesive backing
- One external power adapter
- This User's Guide

If any item is found missing or damaged, please contact your local reseller for replacement.

Setup

The setup of the Switch can be performed using the following steps:

- Install the Switch in a fairly cool and dry place. See *Technical Specification* for the acceptable operation temerature and humidity ranges.
- Install the Switch in a site free from strong electromagnetic source,vibration, dust,and direct sunlight.
- Leave at least 10cm of space at the left and right hand side of the Switch for ventilation.
- Visually inspect the DC power jack and make sure that it is fully secured to the power adapter.

IDENTIFYING EXTERNAL COMPONENTS

This chapter describes the front panel, rear panel and LED indicators of the Switch

Front Panel

The figure below shows the front panels of the switch.

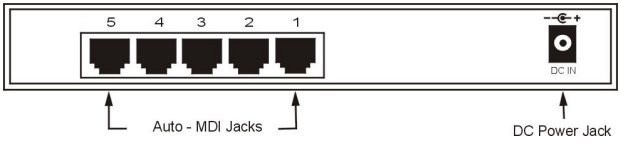
Front panel view of the Switch

LED Indicators

Comprehensive LED indicators display the conditions of the Switch and status of the network. A description of these LED indicators follows (see LED Indicators).

Rear Panel

The rear panel of the Switch consists of an DC power connector. The following figure shows the rear panel of the Switch.



Rear panel view of the Switch

DC Power Jack:

Power is supplied through an external AC power adapter. Check the technical specification section for information about the AC power input voltage.

1000BASE-T Ports:

Five Gigabit Ethernet ports of 10/100/1000Mbps Auto-Negotiation interface.

LED Indicators

The LED indicators of the Switch include Power, Link/Act, 1000Mbps and 100Mbps. The following shows the LED indicators for the Switch along with an explanation of each indicator.

- POWER

This indicator lights green when the Switch is receiving power, otherwise, it is off.

- Link/Act

These LED indicators are lighted up when there is a secure connection (or link) to the desired port. The LED indicators blinking whenever there is reception or transmission (i.e. Activity—Act) of data occurring at a port.

- 1000Mbps

These LED indicators are lighted up when there is a secure connection (or link) to 1000Mbps Gigabit Ethernet device at the desired port.

- 100Mbps

These LED indicators are lighted up when there is a secure connection (or link) to 100Mbps Fast Ethernet device at the desired port.

When the connection (or link) is 10Mbps, both of 1000Mbps and 100Mbps LED indicators are off.

TECHNICAL SPECIFICATIONS

General			
Standards:	IEEE 802.3ab 1000BASE-T IEEE 802.3u 100BASE-TX IEEE 802.3 10BASE-T IEEE 802.3x Flow Control		
Protocol:	CSMA/CD		
Data Transfer Rate:	Ethernet:	10Mbps	(Half-duplex)
		20Mbps	(Full-duplex)
	Fast Ethernet:	100Mbps	(Half-duplex)
		200Mbps	(Full-duplex)
	Gigabit Ethernet:	2000Mbps	(Full-duplex)
Topology:	Star		
Network Cables:	Ethernet:	2-pair UTP Cat. 3,4,5, Unshield Twisted Pair (UTP)Cable	
	Fast Ethernet:	2-pair UTP Cat. 5, Unshield Twisted Pair (UTP)Cable	
	Gigabit Ethernet:	4-pair UTP Cat. 5, Unshield Twisted Pair (UTP)Cable	
Number of Ports:	Five(5) 1000BASE-T Gigabit Ethernet ports		

Physical and Environmental	
DC inputs:	7.5V 1A
Power Consumption:	5 watts maximum
Operating Temperature:	0 °C ~ 40°C
Storage Temperature:	-10°C ~ 70°C
Humidity:	5% ~ 95% RH, non-condensing
Dimensions:	171 x 98 x 29 mm (W x H x D)
Certification:	FCC Class B, CE Marking Class B, VCCI Class B
Performance	
Transmission Method:	Store-and-forward
RAM Buffer:	112KBytes per device
Filtering Address Table:	8K MAC address per device
Packet Filtering/Forwarding Rate:	Full wire speed
MAC Address Learning:	Self-learning, auto-aging

Note:

In the event of incorrect installation and improper use in a residential area, the device may cause disruptions in radio devices and other electronic devices. Proper use means that the device is operated with shielded connector cables as far as possible, for network products also with shielded cables of category 5e and higher. The device was tested and lies within the limits for computer accessories of class A according to the requirements of EN 55022.

Warning !

This is a class A device. This device can cause radio interference in residential areas; in this case, the operator may be required to perform and bear the costs for appropriate measures.

Conformity Declaration:

The device fulfils the EMC requirements of EN 55022 class A for ITE and EN 55024. Devices with external or built-in power supply also fulfil the requirements of EN 61000-3-2 and EN 61000-3-3. The basic protection requirements of the “EMC Directive” 89/336/EEC are therefore fulfilled. The CE conformity has been certified. The corresponding declarations are available from the manufacturer.

Trademarks:

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